

## **REMARKS**

### **Claim Objections**

Claim 12 has been amended in accordance with the Examiner's comments.

### **Claim Rejections**

The present invention relates to a method and apparatus for improving software availability of a cluster computer system including a number of primary servers and spare servers, comprising: collecting system state information about the number of primary servers to monitor unstableness of the servers; if at least one of the servers is judged unstable as a result of monitoring, judging existence of a spare server or other primary server having spare capacity; if at least one of the spare servers or the primary servers having spare capacity exists, duplexing all processes of the unstable primary server to the spare server or the other primary server having spare capacity according to a currently set operation mode; and upon completing duplexing, providing the unstable server with a system rejuvenation control signal for executing rejuvenation. (See Claim 1.) The present invention improves software availability of a cluster computer system using an  $(n+k)$  cluster system, comprising  $n$  primary servers and  $k$  spare servers). (See 504 and 505 of FIGURE 5.)


The Office Action rejected Claims 1, 2, 5-11 and 14 under 35 U.S.C. 102(b) as being anticipated by Fulton (U.S. Patent 5,715,386). Fulton relates to a method for connecting a number of computers for exchanging system state information using a watchdog mechanism. (See 209(A/B/C of Fig. 2.) Fulton, however, does not disclose or even consider a cluster computing environment. In contrast, the present invention relates to a cluster computing environment with high availability, high performance computing, load balancing and switchover.

The Office Action also rejected Claims 1-14 under 35 U.S.C. 102(e) as being anticipated by Harper (U.S. Pub. No. 2003/0036882). Harper relates to a computer system comprising one primary server and one spare server, or a number of primary servers and only one spare server (see 551 A/B of FIG. 5). Thus, Harper corresponds to an (n,1) cluster composition, a cluster system existing only in one spare server. In contrast, the present invention is a composition mixing a number of primary servers and spare servers, and is thus an (n,k) cluster composition. In addition, the present invention is operated without distinction of primary servers and spare servers. Under the cluster computing environment, whenever a spare server can be a primary server, especially if the rest capacity of the primary server remains, the spare server can be used instead of operating an unstable server. However, in Harper, because there is only one spare server, if, during the first duplexing, the other primary server is unstable, there is no alternative.

The Applicant believes that the application is now in condition for allowance. Should the Examiner determine that any further action is necessary to place this application into better form, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

Respectfully submitted,

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